

**Town Link Trail
State Park Road Portion
Detailed Layout**

Options



Submitted by:

Broadreach Planning & Design

October 30, 2018

A. INTRODUCTION

1. OVERVIEW

The Town of Charlotte completed a scoping study for two segments of the Town Link Trail in 2017. The Charlotte Trails Committee is now moving forward on detailed layout work for the portion of the Trail along State Park Road, from the southern end of the Trevor and Mellissa Mack Trail to the entrance to Mount Philo State Park. As the first step in this work, the existing conditions reported in the Scoping Study have been updated and expanded. Broadreach Planning & Design (BRPD) is working with the Town to complete this project.

An initial report provided information on new or expanded information provided in the *Charlotte Town Link Trail Scoping Study* (Scoping Study), completed by the Town with the assistance of Dubois & King, dated July 13, 2017.

2. PROJECT PURPOSE

The purpose of the overall Town Trail Link project is to provide a non-motorized trail through the Town, linking many of the locations that residents want to reach by bicycling or walking, including the Town Beach, the Town Offices, and Mount Philo State Park. This particular portion of the project's purpose is to find the most appropriate detailed alignment of the portion of the Trail that links along State Park Road, following the general recommendations of the Scoping Study.

3. ALTERNATIVES DEVELOPMENT PROCESS

Following an examination of the updated existing conditions, Town Steering Committee conducted a work session to identify as many ways of locating the trail along State Park Road, either in the right-of-way or adjacent easements. They also worked together to do an initial analysis of alternatives to refine or eliminate those that did not meet the purpose and need or were otherwise unsuitable. BRPD then refined the descriptions; including the No-Action Alternative; did further analysis; eliminated alternatives that did not appear to work or meet the purpose of the project; and developed a concise viable set of options. The Steering Committee reviewed and finalized the options information in preparation for a second public work session for the project.

Table 1 at the end of the text shows all of the alternatives that the Steering Committee initially developed; it also highlights whether these initial alternatives were kept as part of the refined set of alternatives, or eliminated prior to the public work session. If the Steering Committee decided to eliminate an alternative, **Table 1**

explains the basis for the elimination. **Figure 5** shows the final set of State Park Road Town Link Trail options that remained after the initial review process. **Figures 6, 7, 8, and 9** provide more detailed look at the options. **Tables 2a, 2b, and 2c** provide an analysis of the remaining options, including the No-Action Alternative. The refined set of options is meant for public review and consideration.

The **Tables** provide a ballpark cost estimate for each of the options, meant primarily for comparison purposes. The final plans will include a more detailed cost estimate for the preferred option.

4. USE OF THIS REPORT & NEXT STEPS

This report is meant to serve as a guide to the alternatives under consideration for the detailed layout of the Town Link Trail along State Park Road. It presents this information for public review.

Figures 6, 7, 8, and 9 in this report present the options that are currently under consideration. The **Figures** do not imply that all of the options are meant to be developed. None of the options are recommended at this point in the project.

The options will be considered at a public work session, during which the attendees will have a chance to express their opinions on which option, or group of options, would make the most sense to pursue first. By the end of the public work session, the Steering Committee hopes that consensus on the preferred option(s) will emerge.

The Steering Committee will review the results of the public work session and make a draft set of final recommendations for one final public review before the study is finished. They will prepare a draft final report and plans for the project, which will outline the preferred option(s). It will include both the *Existing Conditions* report and this *Options* report.

B. OPTIONS

1. OVERVIEW

The trail options are each based on a trail that is eight feet wide with a solid crushed gravel base, similar to the existing trail on the Co-housing property west of Route 7.

In order to easily present the various alternatives, the Steering Committee divided State Park Road into three sections:

- Melissa & Trevor Mack Trail to Vineyard View Drive - From the southern end of the existing trail as it meets State Park Road east to the intersection of State Park Road with Vineyard View Drive - this section is shown on **Figure 6** and reviewed in **Table 2a**;

- Vineyard View Drive to the Four Meadows Farm - From the intersection of Vineyard View Drive with State Park Road to the western property line of the parcel proposed for development as the Four Meadows Farm - this section is shown on **Figure 7** and reviewed in **Table 2b**; and
- Four Meadows Farm - from the western property line of the parcel proposed for development as Four Meadows Farm to the intersection of State Park Road and Mount Philo Road - this section is shown on **Figures 8 and 9** and reviewed in **Table 2c**.

There are generally two options:

- Option A: placing the trail close to the road with a grassed separation of approximately four feet between the trail and the edge of State Park Road; and
- Option B: placing the Road farther away from the road where possible, with the existing tree row along the edge of State Park Road between the trail and the edge of the road; this option includes several different ways of crossing the wetlands adjacent to Thorpe Brook.

The rest of this section describes the different options that are now under consideration, including the option to do nothing at all - the No Action option.

2. NO ACTION

The Town would make no changes to State Park Road and would not install a new trail from the end of the existing Melissa and Trevor Mack Trail to Mount Philo Road with the No Action option. Walkers and bicyclists would continue to negotiate this route by walking or bicycling along the edge and/or shoulder of the road. The speed of vehicles and the dips in the road make this use of the road less than ideal for walkers and bicyclist.

3. MELISSA & TREVOR MACK TRAIL TO VINEYARD VIEW DRIVE

a. Option A - Close to the Road

The trail would lie close the road in the existing grassed area. It would lie over the existing drainage ditch on either side of the existing driveway in this section, requiring that the ditches be relocated or converted to culverts.

b. Option B - Away from the Road

The trail would lie at the outer edge of the existing easement, approximately five feet away from the edge of the road at the western end and about ten feet away from the

road at the eastern end, where there is a five foot easement available to the Town for placement of the trail.

4. VINEYARD VIEW DRIVE TO FOUR MEADOWS FARM

a. Option A - Close the Road

The trail would lie approximately four feet away from the road, separated from it by a four-foot wide grassed area. In those locations where the existing shoulder area is less than ten-feet wide, a retaining wall would be added on the down side and fill placed behind it to create enough space for the trail. Alternately, the trail could be narrowed or placed closer to the road to avoid the need for the retaining wall and fill. The ballpark cost estimate for this option is based on using the retaining walls and fill. There are several prominent trees along this section of State Park Road that might need to be removed as part of the construction of the trail.

b. Option B - Away from the Road with Boardwalk

The trail for this option would be located behind the existing tree row. It would be placed far enough back from the road to be significantly separated and screened from the road. This setback would require crossing the wetland near Thorpe Brook. The crossing would be via boardwalk, raised approximately two to four feet above the level of the wetland. The path would use small retaining walls to maintain an existing slope of five percent or less as it descends from the higher areas on either side of the wetland down to the level of the wetland.

c. Option B - Away from the Road with Bridge

This variation of Option B would use several sections of prefabricated bridge to cross the wetland. The bridge would replace the boardwalk and would eliminate the need to use the retaining walls on the slopes on either side of the wetland. The bridge would be divided into at least three sections, requiring the construction of two foundations in the wetland, one on either side of Thorpe Brook.

d. Option B1 - At the Edge of the Wetland with Boardwalk

This variation on Option B would reroute the trail as it nears the wetland to the southern end of the trail, close to the State Park Road right-of-way. The boardwalk would be close the edge of the wetland. It would still use small retaining walls to negotiate the slopes down to the wetland on either side.

e. Option B1 - At the Edge of the Wetland with Bridge

This variation on Option B would also reroute the trail as it nears the wetland to be close to the southern road. It would use prefabricated bridges to cross the wetland.

The trail would need at least three sections of bridge to cross the wetland, with two foundations placed in the wetland.

5. FOUR MEADOWS FARM TO MOUNT PHILO ROAD

a. Option A - Close the Road

This option would place the trail close to State Park Road, divided from the edge of the pavement by a four-foot wide grassed area. For those locations where the existing shoulder area is less than ten feet wide, a retaining wall would support fill to create a wider area for the path. The ballpark cost for this section of trail is based on using the retaining wall and fill. The Town could also narrow the trail and/or place it close to the road to avoid the need to use the retaining wall.

b. Option B - Away from the Road

This option would place the trail in the western portion of this section on the north side of the existing tree row along State Park Road. This would place the trail in the outer edges of the forested wetland. This portion of the trail would be placed on fill rather than on a boardwalk. Further east in the grassed area, the trail would lie at the outer edges of the wetland, requiring the relocation of the existing drainage ditch close to the road. In those areas where there is no wetland, the trail would move further away from the road.

6. PARKING

As part of the trail construction along State Park Road, the Town is considering the inclusion of a trail head the eastern end. The trail head would include a small kiosk with information about the trail, as well as up to four parking spaces for vehicles. One option is now under consideration, probably for a future phase of the project. **Figure 9** shows the location of the optional parking. The potential parking spaces along State Park Road would be parallel to the road and located at least 40 feet away from the intersection with Mount Philo Road. There appears to be sufficient room and right of way to easily create the spaces. The kiosk would be located close to the corner.

7. TRAFFIC CALMING

At a minimum, the construction of the trail would also include the installation of a marked crosswalk and appropriate crosswalk signs on Mount Philo Road to the driveway into Mount Philo State Park.

TABLE 1: Initial Alternatives Analysis

**Town of Charlotte, Vermont
Town Link Trail: State Park Road Detailed Layout**

October 31, 2018

OPTION	DESCRIPTION	DISPOSITION	FINAL DESIGNATION
No Action	Continuation of the current arrangement with walkers and bicyclistst using the shoulders of State Park Road	Kept	No Action
OVERALL TRAIL			
1. Adjacent to the road	Trail located directly next to the road with no separation	Eliminated - safety concerns, poor aesthtics, difficult winter use due to plowed snow	
2. Four-foot average separation from the road	Trail located approximately four feet away from the road with a grassed area between the trail and the road	Kept	Option A
3. Ten-foot average separation from the road	Trail located approximately ten feet away from the road with grass, shrubs and trees in the area between the trail and the road	Eliminated - too many trees removed, similar to other options	
4. Outer edge of ROW or available easements	Trail located as far as possible from the road, lying at the outer edges of the right-of-way and the available easements	Eliminated - unacceptable wetland and wildlife impcats	
5. Variable separation from the road	Trail located at avariable distances from the road to avoid wetland impacts and create a winding trail	Kept	Option B
WETLAND CROSSING			
a. Boardwalk	Eight- to ten-foot wide oardwalk approximately one foot above the wetland	Kept	Option B and B1
b. Bridge - single span	Prefabricated bridge reaching from one side of the wetland to the other	Eliminated - distance too large for single crossing	
c. Bridge - multiple spans in middle of easement	Three prefabricated bridges used to cross the wetland	Kept	Option B
d. Bridge - multiple spans at edge of wetland	Three prefabricated bridges used to cross the wetland	Kept	Option B1
e. Fill	Solid surface for trail created by adding fill to the wetland ten feet wide	Eliminated - unacceptable wildlife impacts; difficult to obtain permit	

TABLE 2a: Alternatives Analysis (Figure 6)
Town of Charlotte, Vermont
Town Link Trail: State Park Road Detailed Layout
October 31, 2018

	M&TM Trail to Vineyard View		
	No Action	Option A Closer to Road	Option B Away from Road
Project Description			
Length	0	515 ft	515 ft
Average Width	0	6 to 8 ft	8 ft
Length of Boardwalk	0	0	0
Length of Fill	0	0	0
Width of Fill	0	0	0
Area of Wetland Dist.	0	0	0
Area of Buffer Dist.	0	0	0
Avg. Distance from Road	0	4 ft	5ft to 10ft
Number of Trees Removed	0	0	0
Length of Narrow Section	0	100 ft	0
Length of Retaining Wall	0	0	0
Average Height of Retaining Wall	0	0	0
Number of New Culverts	0	1	1
Number of Extended Culverts	0	0	0
Drainage Ditch Modification	0	0	0
Construction Easements	0	0	1
Significant Physical Constraints	None	Driveway crossings with drainage ditch	Driveway crossing and trees
Environmental/Cultural Impacts			
Tree Disturbance	No	Removal of invasive and unhealthy trees	Removal of invasive and unhealthy trees
Visual Impacts to Road	No	Removal of some vegetation close to road	Removal of some vegetation close to the road
Watercourse Impacts	No	No	No
Steep Slope Disturbance	No	No	No
Habitat Impacts	No	No	No
Land Use Impacts	No	No	No
Wildlife Movement Impacts	No	No	No
Rainwater Runoff Modifications	No	Minimal	Minimal
Drainage Ditch & Storm Water Structure Disturbance	No	Drainage ditch covered and placed in culvert	No
Construction Impacts		Minimal	Minimal
Utility Impacts	None	Add secondary support pole to utility pole guy wire to allow trail users to pass under	None
Easement Impacts	No	No	Requires relocating private fence close to Vineyard View
Project Attributes			
Meets Purpose and Need Statement by Itself	No	Yes	Yes
Types of Users Served	Brave walkers and advance bicyclists	All walkers and bicyclists	All walkers and bicyclists
Safety Considerations	Typical on-road safety for walkers and bicyclists on a hilly road with numerous fast moving vehicles	Four-foot separation from State Park Road - grass and space are barriers between vehicles and users	Five-foot or greater separation from State Park Road - grass, shrubs, trees, and space are barriers between vehicles and users
Users' Experience	Typical on-road safety for walkers and bicyclists	Relative proximity to road reduces enjoyment for users	Greater separation from road for portions increases enjoyment for users
Required Permits	None	Town	Town
Special Maintenance Considerations	Nothing new or different	Close to road - might get covered with plowed snow	Close to road sections might get covered with plowed snow
Order of Magnitude Cost	\$0	\$15,500	\$15,500
Positive Considerations			
Negative Considerations			
Neutral			

TABLE 2b: Alternatives Analysis (Figure 7)
Town of Charlotte, Vermont
Town Link Trail: State Park Road Detailed Layout
October 31, 2018

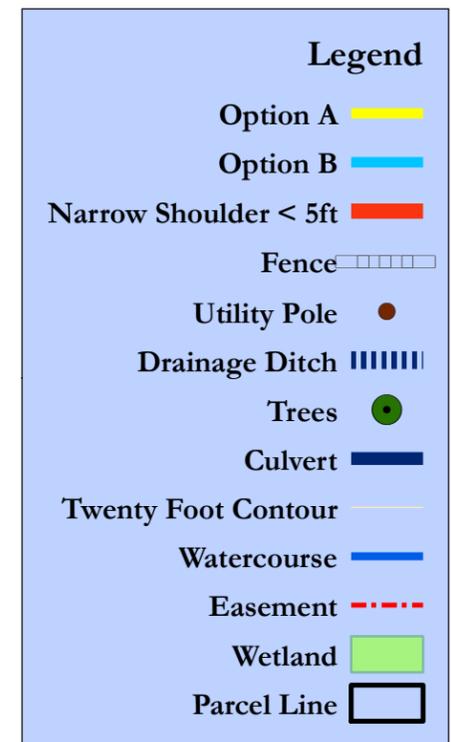
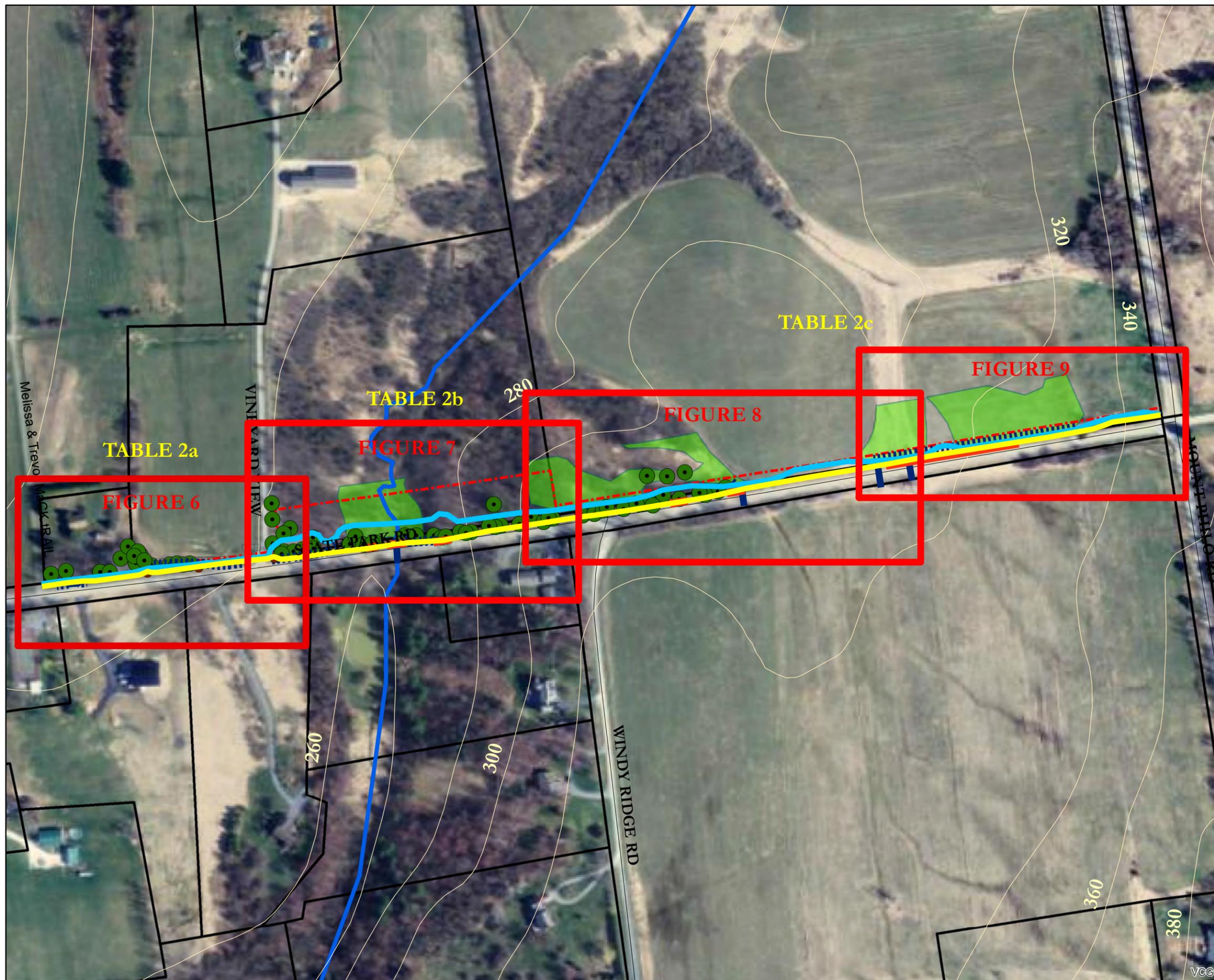
	Vineyard View to Four Meadows Farm			
	No Action	Option A Closer to Road	Option B Away from Road - Boardwalk or Bridge	Option B1 At Edge of Wetland - Boardwalk or Bridge
Project Description				
Length	0	695 ft	715 ft	715 ft
Average Width	0	8 ft	8 ft	8 ft
Length of Boardwalk or Bridge	0	0	210 ft	190 ft
Length of Fill	0	50 ft	0	0
Width of Fill	0	5 ft	0	0
Area of Wetland Dist.	0	250 sq ft	2,525 sq ft	2,525 sq ft
Area of Buffer Dist.	0	1,035 sq ft	1,500 sq ft	1,500 sq ft
Avg. Distance from Road	0	4 ft	45 ft	25 to 45 ft
Number of Trees Removed	0	Up to 11	0	Up to 3
Length of Narrow Section	0	90 ft	0	0
Length of Retaining Wall	0	50 ft	200 ft	200 ft
Average Height of Retaining Wall	0	6 ft	3 ft	3 ft
Number of New Culverts	0	2	0	0
Number of Extended Culverts	0	0	0	0
Drainage Ditch Modification	0	190 ft	0	0
Construction Easements	0	0	1	1
Significant Physical Constraints	None	Narrow shoulder with adjacent slope to wetland	Wetland, Thorpe Brook, and slopes on either side	Wetland, Thorpe Brook and slopes on either side
Environmental/Cultural Impacts				
Tree Disturbance	No	Potential for removal of up to four large willows and one white pine as well as invasive species and unhealthy trees	Removal of invasive and unhealthy trees	Removal of up to three identified trees and invasive and unhealthy trees
Visual Impacts to Road	No	Some removal of trees and shrubs along edge of road, widening the roadway space between trees on either side of the road	Minimal	Some removal of trees close to tree row along edge of road, with slight modification of tree cover at edge of the road; Slightly more impacts with bridge installation
Watercourse Impacts	No	No	Boardwalk covers and shades stream	Boardwalk covers and shades trees; Bridge covers and minimally shades stream from a higher elevation
Steep Slope Disturbance	No	Trail covers existing steep slope at the edge of roadway fill	Path traverses small areas of steep slopes with descent to wetland area	Path cuts across steep slope with descent to wetland area
Habitat Impacts	No	Minimal	Path cuts through wetland area with some loss of habitat area	Path cuts along the edge of the wetland area with minor loss of habitat area
Land Use Impacts	No	No	No	No
Wildlife Movement Impacts	No	Potential blocking of wildlife passage across road by people and pets using trail	Boardwalk, path, and presence of people and pets could block or disturb wildlife movement along Thorpe Brook	Boardwalk or bridge and presence of people and pets could block or disturb wildlife movement along Thorpe Brook
Rainwater Runoff Modifications	No	Minimal	Minimal	Minimal
Drainage Ditch & Storm Water Structure Disturbance	No	Drainage ditch covered and placed in culvert	No	No
Construction Impacts		Some disturbance to slopes adjacent to wetland while constructing retaining walls	Disturbance to wetland while constructing boardwalk and disturbance to slopes in buffer while cutting in trail	Disturbance to wetland while constructing bridge or boardwalk foundation (greater for boardwalk), clearance of trees for bridge installation and disturbance to slopes in buffer while cutting in trail
Utility Impacts	None	None	None	None
Easement Impacts	No	No	No	No
Project Attributes				
Meets Purpose and Need Statement by Itself	No	Yes	Yes	Yes
Types of Users Served	Brave walkers and advance bicyclists	All walkers and bicyclists	All walkers and bicyclists	All walkers and bicyclists
Safety Considerations	Typical on-road safety for walkers and bicyclists on a hilly road with numerous fast moving vehicles	Four-foot separation from State Park Road - grass and space are barriers between vehicles and users	Five-foot or greater separation from State Park Road - grass, shrubs, trees, and space are barriers between vehicles and users	Five-foot or greater separation from State Park Road - grass, shrubs, and trees, and space are barriers between vehicles and users
Users' Experience	Typical on-road safety for walkers and bicyclists	Relative proximity to road reduces enjoyment for users	Greater separation from the road and crossing the wetland increase enjoyment for users	Greater separation from the road and crossing the wetland increase enjoyment for users
Required Permits	None	Town, State Wetland,	Town, State Wetland, Stream Disturbance	Town, State Wetland, Stream Disturbance
Special Maintenance Considerations	Nothing new or different	Close to road - might get covered with plowed snow	Boardwalk will require additional maintenance	Boardwalk or bridge will require additional maintenance
Order of Magnitude Cost	\$0	\$115,500	\$365,000 Boardwalk	\$340,000 Boardwalk
Positive Considerations			\$415,000 Bridge	\$415,000 Bridge
Negative Considerations				
Neutral				

TABLE 2c: Alternatives Analysis (Figures 8 & 9)
Town of Charlotte, Vermont
Town Link Trail: State Park Road Detailed Layout
 October 31, 2018

	Four Meadows Farm to Mt.Philo Road		
	No Action	Option A Closer to Road	Option B Away from Road
Project Description			
Length	0	1,450 ft	1,465 ft
Average Width	0	8 ft	8 ft
Length of Boardwalk	0	0	0
Length of Fill	0	100 ft	60 ft
Width of Fill	0	4 ft	8 ft
Area of Wetland Dist.	0	1,275sq ft	5,550 sq ft
Area of Buffer Dist.	0	7,575 sq ft	6,250 sq ft
Avg. Distance from Road	0	4 ft	25 ft
Number of Trees Removed	0	Up to 7	0
Length of Narrow Section	0	400 ft	210
Length of Retaining Wall	0	360 ft	65 ft
Average Height of Retaining Wall	0	4 ft	4 ft
Number of New Culverts	0	0	6
Number of Extended Culverts	0	4	0
Drainage Ditch Modification	0	15 ft	350 ft
Construction Easements	0	0	0
Significant Physical Constraints	None	Narrow shoulder with adjacent slope to wetland and proposed driveway	Wetland and drainage ditch
Environmental/Cultural Impacts			
Tree Disturbance	No	The need to expand shoulder could remove trees	Removal of invasive and unhealthy trees
Visual Impacts to Road	No	Some removal of trees and shrubs along edge of road, widening the roadway space between trees on either side of the road	Minimal
Watercourse Impacts	No	No	No
Steep Slope Disturbance	No	Trail covers existing steep slope at the edge of roadway fill	No
Habitat Impacts	No	Minimal	Minimal
Land Use Impacts	No	Path near future paddocks	Path near future paddocks
Wildlife Movement Impacts	No	No	No
Rainwater Runoff Modifications	No	Minimal	Minimal
Drainage Ditch & Storm Water Structure Disturbance	No	Culvert extensions	Covers much of drainage ditch, placing rainwater in culverts
Construction Impacts		Disturbance to wetland edges and buffers	Disturbance to wetland and buffers
Utility Impacts	None	None	None
Easement Impacts	No	No	Alignment relies on easement not yet finalized
Project Attributes			
Meets Purpose and Need Statement by Itself	No	Yes	Yes
Types of Users Served	Brave walkers and advance bicyclists	All walkers and bicyclists	All walkers and bicyclists
Safety Considerations	Typical on-road safety for walkers and bicyclists on a hilly road with numerous fast moving vehicles	Four-foot separation from State Park Road - grass and space are barriers between vehicles and users	Eight-foot or greater separation from State Park Road - grass, shrubs, trees and space are barriers between vehicles and users
Users' Experience	Typical on-road safety for walkers and bicyclists	Relative proximity to road reduces enjoyment for users	Greater separation from the road increase enjoyment for users
Required Permits	None	Town, State Wetland,	Town, State Wetland
Special Maintenance Considerations	Nothing new or different	Close to road - might get covered with plowed snow	Close to road sections might get covered with plowed snow
Order of Magnitude Cost	\$0	\$130,000	\$120,000
Positive Considerations			
Negative Considerations			
Neutral			

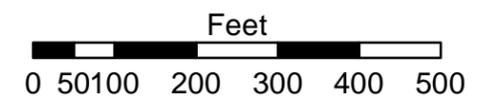
Town Link Trail State Park Road Detailed Layout

Charlotte, Vermont



Layout Options

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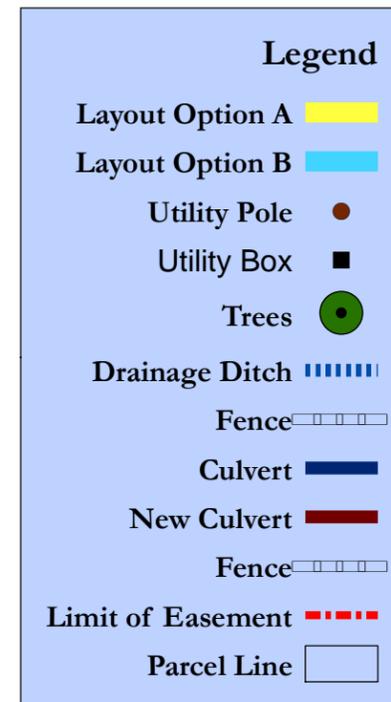
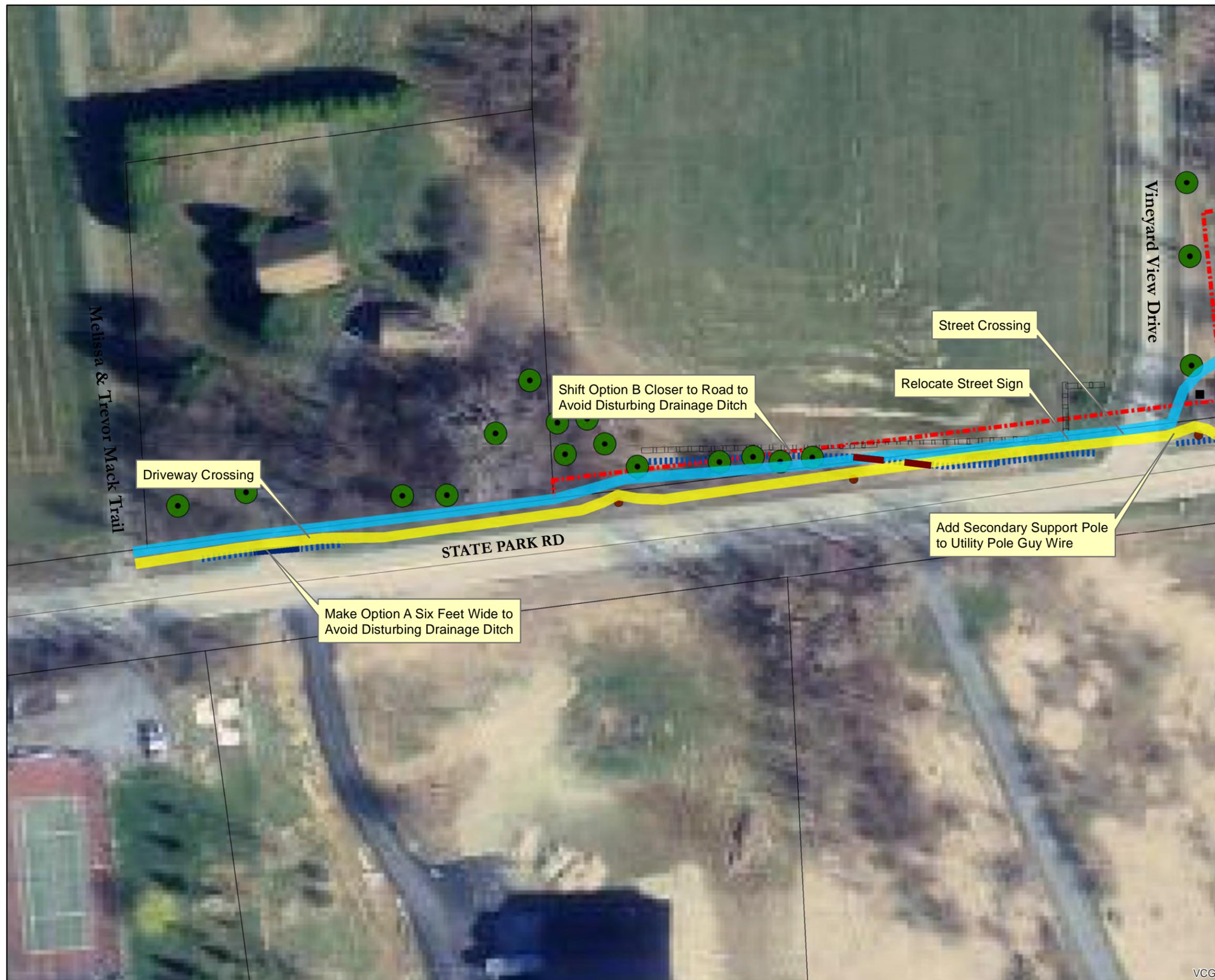


November 5, 2018

Figure 5

Town Link Trail State Park Road Detailed Layout

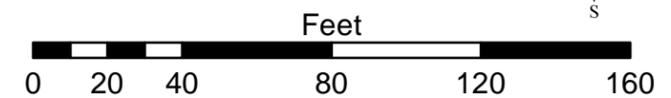
Charlotte, Vermont



Tree Locations are Approximate

Layout Options: M&TM Trail to Vineyard View Dr.

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October 31, 2018

Figure 6

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Town Link Trail State Park Road Detailed Layout

Charlotte, Vermont

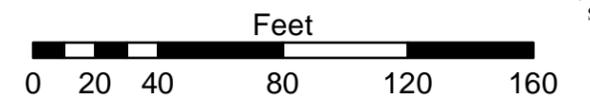


Legend	
New Culvert	
Boardwalk or Bridge	
Option A	
Option B	
Option B1	
Option A Removal	
Option B1 Removal	
Utility Box	
Significant Tree	
Narrow Shoulder < 5ft	
Culvert	
Drainage Ditch	
Fence	
Easement	
Watercourse	
Wetland	
Parcel Line	

Tree Locations are Approximate

Layout Options: Vineyard View to Four Meadows Farm

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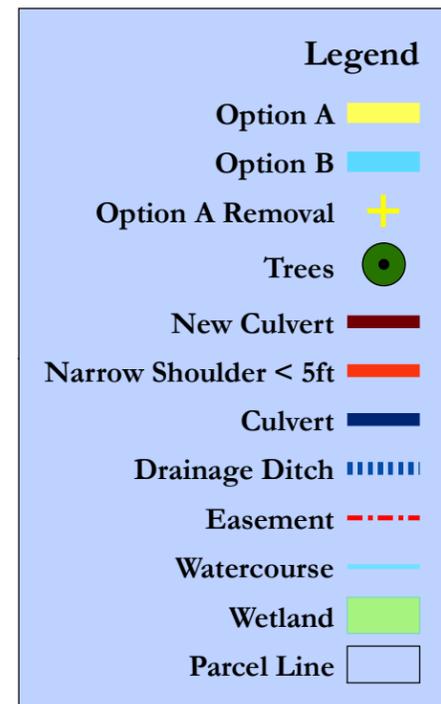
October 31, 2018

Figure 7

VCGI

Town Link Trail State Park Road Detailed Layout

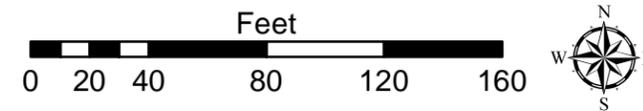
Charlotte, Vermont



Tree Locations are Approximate

Layout Options: Four Meadows Farm West

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October 31, 2018

Figure 8

VCGI

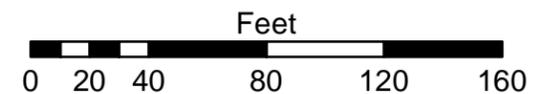
Town Link Trail State Park Road Detailed Layout

Charlotte, Vermont



Layout Options: Four Meadows Farm East

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October 31, 2018

Figure 9

VCGI